

(Cobe Spectra). The disposable elements may be integrated using the fittings provided by the manufacturer or they may be linked by use of a sterile connecting device such as those manufactured by Terumo Inc. Similarly the mechanisms described in this less integrated approach could be linked to a central controller and assembled as components of a more integrated device. A peristaltic pump or battery of pumps could be used to automate fluid flow with use of manual or automated clamping to open and close fluid pathways.

In the Claims:

Claims 1-92 have been canceled without prejudice.

The following claims have been added:

93. (New) A method of treating a patient, comprising:
- (a) providing a tissue removal system;
 - (b) removing adipose tissue from a patient using the tissue removal system, the adipose tissue having a concentration of stem cells;
 - (c) filtering the adipose tissue removed from the patient to separate adipose tissue from non-adipose tissue;
 - (d) processing at least a part of the adipose tissue to obtain a concentration of stem cells other than the concentration of stem cells of the adipose tissue before processing; and
 - (e) administering the stem cells to a patient without removing the stem cells from the tissue removal system before being administered to the patient.
94. (New) The method as set forth in claim 93, wherein (c) comprises delivering the removed adipose tissue to a container having a plurality of pores sized to retain adipose tissue and to pass non-adipose tissue.

95. (New) The method as set forth in claim 93, wherein (d) comprises separating the stem cells from the removed adipose tissue so that the stem cells are substantially free from mature adipocytes and connective tissue.
96. (New) The method as set forth in claim 95, wherein (d) comprises centrifugation.
97. (New) The method as set forth in claim 96, wherein (d) comprises using a spinning membrane filter.
98. (New) The method as set forth in claim 96, further comprising
(f) resuspending the stem cells after the centrifugation.
99. (New) The method as set forth in claim 93, further comprising:
(f) administering an immunosuppressive agent that inhibits rejection of the stem cells from the patient.
100. (New) The method as set forth in claim 99, wherein (f) comprises administering an immunosuppressive agent selected from a group consisting of: cyclosporin, myophenylate mofetil, rapamycin, anti-thymocyte globulin, and agents that reduce costimulation of B-cells and T-cells of the patient.
101. (New) The method as set forth in claim 93, further comprising
(f) administering a cell differentiation factor to the patient to specify differentiation of the stem cells when administered to the patient.
102. (New) The method as set forth in claim 93, wherein the stem cells are administered to a patient to treat a disease.
103. (New) The method as set forth in claim 93, wherein the stem cells are administered to a patient to treat a cosmetic feature of the patient.

104. (New) The method as set forth in claim 93, wherein the stem cells are administered to a patient to treat bone-related disorders, diseases, or injuries, adipose related disorders or diseases; liver related diseases, disorders, or injuries, myocardial infarctions, renal diseases or kidney damage; retinal diseases or damage or necrosis; wound healing; skeletal muscle disorders both; cartilage and joint repair; lung injuries; diabetes; intestinal disorders; and nervous system disorders, diseases, or injuries.

105. (New) The method as set forth in claim 93, wherein (b) and (d) are automated.

106. (New) The method as set forth in claim 93, further comprising (f) disposing of portions of the tissue removal system that have contacted body fluids after the stem cells have been administered to the patient.

107. (New) The method as set forth in claim 93, wherein (d) comprises separating stem cells in a suspension from a fluid of the suspension in a cell concentrator of the tissue removal system.

108. (New) The method as set forth in claim 93, wherein (d) comprises using a spinning membrane filter.

109. (New) The method as set forth in claim 93, further comprising (f) passing the stem cells through a second filter located between a cell collection container and a mixing container of the tissue removal system, and preventing the passage of material through the second filter that is larger than at least the stem cells contained therein.

110. (New) The method as set forth in claim 109, wherein the second filter comprises a plurality of pores smaller than about 200 μm in diameter.

111. (New) The method as set forth in claim 109, wherein the second filter comprises a plurality of pores having diameters between about 20 μm and 200 μm .

112. (New) The method as set forth in claim 109, wherein the second filter is spaced apart from the cell collection container.
113. (New) The method as set forth in claim 109, wherein the second filter is a component of the cell collection container.
114. (New) The method as set forth in claim 93, wherein the adipose tissue is filtered through a filter including a plurality of pores ranging in size between about 20 μm and 5 mm.
115. (New) The method as set forth in claim 93, further comprising (f) exposing the stem cells to a cell differentiation factor present in an amount to control differentiation of the stem cells.
116. (New) The method as set forth in claim 93, wherein (d) further comprises disaggregating the filtered adipose tissue, followed by using a spinning membrane filter.
117. (New) The method as set forth in claim 93, wherein (b), (c), and (d) are automated.

In the Claims:

Please cancel claims 1-92 without prejudice. Applicants reserve the right to pursue the subject matter of these claims in a related application to be filed at Applicants' discretion.

Please add the following claims:

93. (New) A method of treating a patient, comprising:
- (a) providing a tissue removal system;
 - (b) removing adipose tissue from a patient using the tissue removal system, the adipose tissue having a concentration of stem cells;
 - (c) filtering the adipose tissue removed from the patient to separate adipose tissue from non-adipose tissue;
 - (d) processing at least a part of the adipose tissue to obtain a concentration of stem cells other than the concentration of stem cells of the adipose tissue before processing; and
 - (e) administering the stem cells to a patient without removing the stem cells from the tissue removal system before being administered to the patient.
94. (New) The method as set forth in claim 93, wherein (c) comprises delivering the removed adipose tissue to a container having a plurality of pores sized to retain adipose tissue and to pass non-adipose tissue.
95. (New) The method as set forth in claim 93, wherein (d) comprises separating the stem cells from the removed adipose tissue so that the stem cells are substantially free from mature adipocytes and connective tissue.
96. (New) The method as set forth in claim 95, wherein (d) comprises centrifugation.
97. (New) The method as set forth in claim 96, wherein (d) comprises using a spinning membrane filter.

98. (New) The method as set forth in claim 96, further comprising
(f) resuspending the stem cells after the centrifugation.
99. (New) The method as set forth in claim 93, further comprising:
(f) administering an immunosuppressive agent that inhibits rejection of the stem cells from the patient.
100. (New) The method as set forth in claim 99, wherein (f) comprises administering an immunosuppressive agent selected from a group consisting of: cyclosporin, myophenylate mofetil, rapamicin, anti-thymocyte globulin, and agents that reduce costimulation of B-cells and T-cells of the patient.
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(f) administering a cell differentiation factor to the patient to specify differentiation of the stem cells when administered to the patient.
102. (New) The method as set forth in claim 93, wherein the stem cells are administered to a patient to treat a disease.
103. (New) The method as set forth in claim 93, wherein the stem cells are administered to a patient to treat a cosmetic feature of the patient.
104. (New) The method as set forth in claim 93, wherein the stem cells are administered to a patient to treat bone-related disorders, diseases, or injuries, adipose related disorders or diseases; liver related diseases, disorders, or injuries, myocardial infarctions, renal diseases or kidney damage; retinal diseases or damage or necrosis; wound healing; skeletal muscle disorders both; cartilage and joint repair; lung injuries; diabetes; intestinal disorders; and nervous system disorders, diseases, or injuries.

105. (New) The method as set forth in claim 93, wherein (b) and (d) are automated.
106. (New) The method as set forth in claim 93, further comprising (f) disposing of portions of the tissue removal system that have contacted body fluids after the stem cells have been administered to the patient.
107. (New) The method as set forth in claim 93, wherein (d) comprises separating stem cells in a suspension from a fluid of the suspension in a cell concentrator of the tissue removal system.
108. (New) The method as set forth in claim 93, wherein (d) comprises using a spinning membrane filter.
109. (New) The method as set forth in claim 93, further comprising (f) passing the stem cells through a second filter located between a cell collection container and a mixing container of the tissue removal system, and preventing the passage of material through the second filter that is larger than at least the stem cells contained therein.
110. (New) The method as set forth in claim 109, wherein the second filter comprises a plurality of pores smaller than about 200 μm in diameter.
111. (New) The method as set forth in claim 109, wherein the second filter comprises a plurality of pores having diameters between about 20 μm and 200 μm .
112. (New) The method as set forth in claim 109, wherein the second filter is spaced apart from the cell collection container.
113. (New) The method as set forth in claim 109, wherein the second filter is a component of the cell collection container.

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114. (New) The method as set forth in claim 93, wherein the adipose tissue is filtered through a filter including a plurality of pores ranging in size between about 20 μm and 5 mm.
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116. (New) The method as set forth in claim 93, wherein (d) further comprises disaggregating the filtered adipose tissue, followed by using a spinning membrane filter.
117. (New) The method as set forth in claim 93, wherein (b), (c), and (d) are automated.